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IS 2590 (1987): Primary aluminium ingots for remelting for general engineering purposes [MTD 7: Light Metals and their Alloys]



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Indian Standard

SPECIFICATION FOR
PRIMARY ALUMINIUM INGOTS FOR
REMELTING FOR GENERAL
ENGINEERING PURPOSES
(*Second Revision*)

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 RAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

**SPECIFICATION FOR
PRIMARY ALUMINIUM INGOTS FOR
REMELTING FOR GENERAL
ENGINEERING PURPOSES**

(Second Revision)

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Indian Standard
SPECIFICATION FOR
PRIMARY ALUMINIUM INGOTS FOR
REMELTING FOR GENERAL
ENGINEERING PURPOSES
(*Second Revision*)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 15 January 1987, after the draft finalized by the Light Metals and Their Alloys Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 This standard was first published in 1964 and subsequently revised in 1979. In this revision grade of 99.8 percent minimum aluminium content has been deleted as this grade is used for special application and not for general engineering purposes. This standard is intended to help both producers and consumers in their day-to-day transactions.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the requirements for 99.7, 99.6, 99.5 and 99.0 percent primary aluminium ingots for remelting purpose.

*Rules for rounding off numerical values (revised).

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definition shall apply.

2.1 Cast — It shall be defined as one of the following:

- a) The product of one furnace melt, or
- b) The product of a number of furnace melts mixed prior to casting.

3. SUPPLY OF MATERIAL

3.1 General requirements relating to the supply of ingots shall conform to IS : 10259-1982*.

3.2 The ingots shall be reasonably free from slag or dross.

4. MANUFACTURE

4.1 The ingots shall be manufactured from primary aluminium.

4.2 No scrap shall be used in the production of the material except that which has accumulated during the process of manufacture of the material and which has not been remelted except by the manufacturer.

5. GRADES

5.1 The following grades are covered in this standard:

- a) *Grade 1* — Ingots of 99·7 percent primary aluminium
- b) *Grade 2* — Ingots of 99·6 percent primary aluminium
- c) *Grade 3* — Ingots of 99·5 percent primary aluminium
- d) *Grade 4* — Ingots of 99·0 percent primary aluminium

6. CHEMICAL COMPOSITION

6.1 The chemical composition of the ingots shall be as given in Table 1.

6.1.1 The chemical composition shall be determined either by the method specified in IS : 504-1963† or any other established instrumental/chemical method. In case of dispute the procedure specified in IS : 504-1963† shall be the referee method.

*General condition of delivery and inspection of aluminium and aluminium alloy products.

†Methods of chemical analysis of aluminium and its alloys (revised).

TABLE 1 CHEMICAL COMPOSITION OF PRIMARY ALUMINIUM FOR REMELTING FOR GENERAL ENGINEERING PURPOSES

(Clause 6.1)

COMPOSITION LIMITS ARE IN PERCENT MAXIMUM UNLESS SHOWN OTHERWISE

Grade IS Designation	Grade 1	Grade 2	Grade 3	Grade 4
	19700	19600	19500	19000
Aluminium, <i>Min</i>	99.7	99.6	99.5	99.0
Copper	0.03	0.04	0.05	0.10
Silicon	0.20	0.25	0.30	0.50
Iron	0.25	0.35	0.40	0.60
Manganese	0.03	0.03	0.05	0.10
Zinc	0.06	0.07	0.10	0.10
Titanium + Vanadium	0.05	0.05	0.07	0.07
Other elements (each)	0.05	0.05	0.07	0.10

NOTE — Aluminium shall be determined by difference.

7. SHAPES AND SIZES

7.1 Unless otherwise agreed, the shapes and sizes of ingots shall be in accordance with IS : 1820-1979*.

8. SELECTION OF SAMPLES FOR ANALYSIS

8.1 At least one sample shall be selected at random from every 4 000 kg, or part thereof, of each cast.

8.2 Samples shall be obtained by one of the following methods:

- a) Wherever possible, directly from the stream of metal filling the moulds midway through the pour; or
- b) From ingot by any suitable mechanical method so as to get a true representative sample of the ingot.

8.3 Retest — If a sample selected for testing fails to meet the requirements of the specification, two further samples shall be taken from the same lot of metal. If either of these samples fails to meet the requirements of the specification, the whole of the metal represented by the sample shall be rejected.

*Recommended shapes and sizes of aluminium notched bars and ingots for remelting purposes (*first revision*).

9. MARKING

9.1 All ingots shall be identified by such marking as shall ensure full identification of the material. The supplier shall furnish along with each consignment a certificate giving chemical composition of all the casts to which the ingots belong in that consignment.

9.1.1 The ingots may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

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